Fermilab

Dark Energy Survey (DES) Working Group Meeting

April 28, 2006

10:00 – 11:00 AM

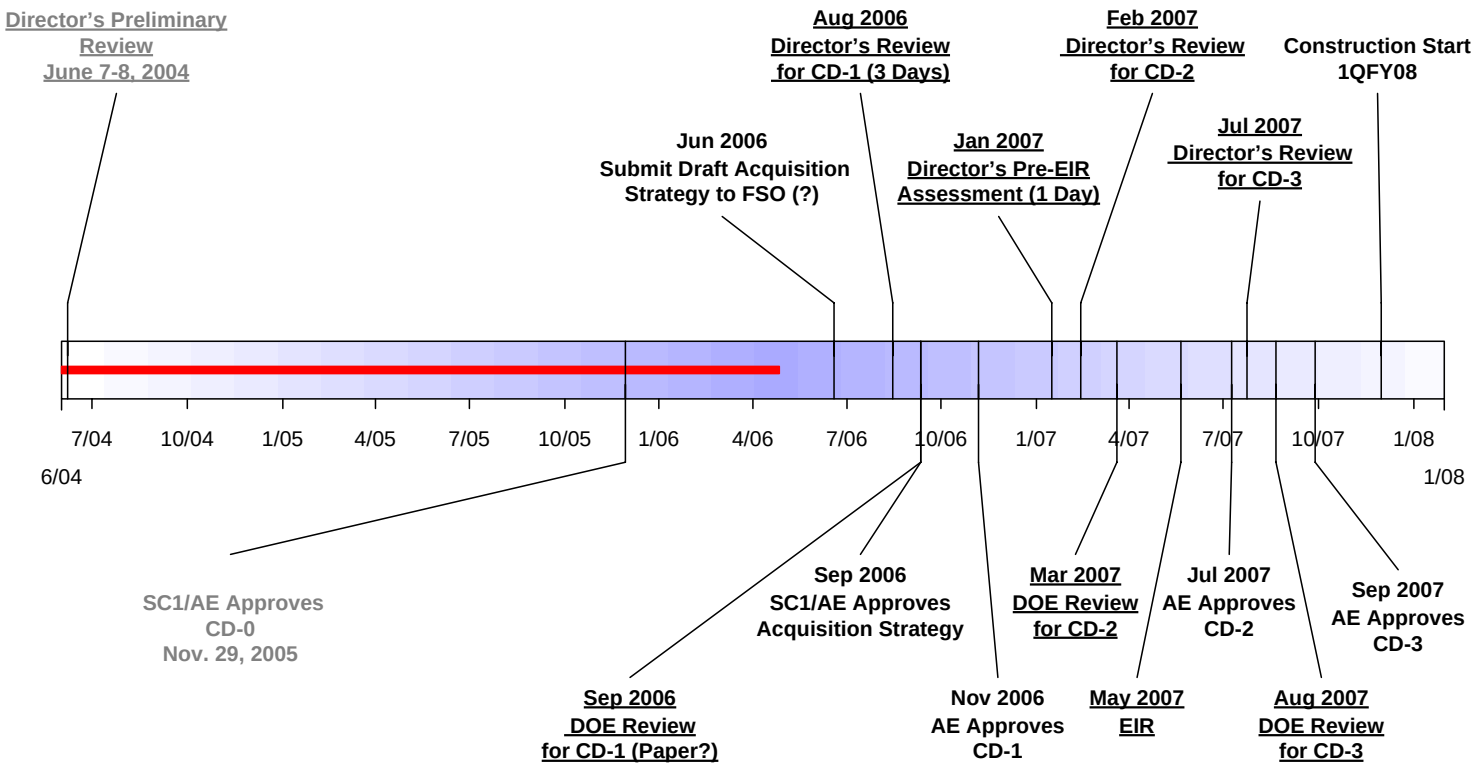
Black Hole

Agenda

1) Status discussion on defining Scope/Boundaries of DOE's portion of the DES Project. What is included in TEC/OPC/TPC? [Brenna/Wyatt/Paul/Kathy]
2) Discuss DES Timeline [Ed/Dean]
3) Staffing for DES –MEs [Brenna/Jim Strait]
4) Discuss CDR preparations [John/Brenna/Wyatt]
5) Discuss Preparations for other CD-1 documentation – CD Prerequisites Table [Brenna/Wyatt]
6) Presentation of PPEP, PPMP and Acquisition Strategy Content [Ed]
7) Status of Open Action Items from 07-Apr meeting: [Brenna/Wyatt]

Dark Energy Survey Project Timeline for Critical Decisions & Reviews

Updated 04-Apr-06

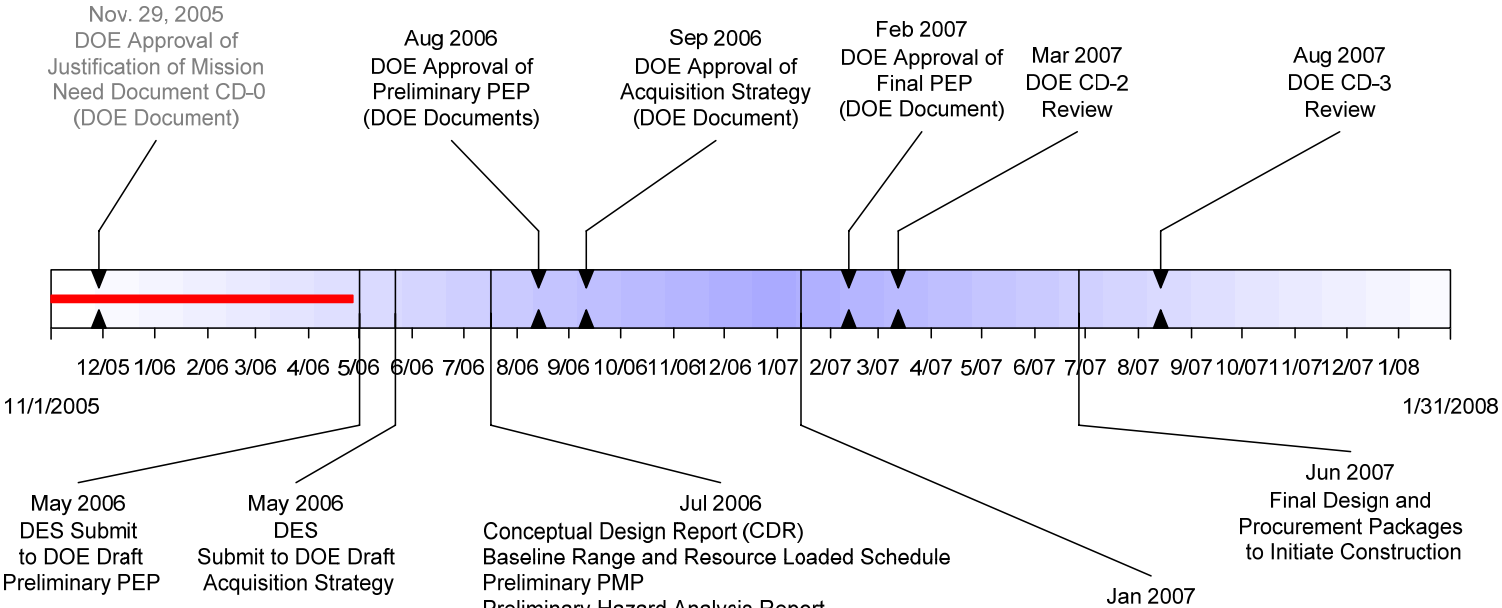


Dark Energy Survey Project Timeline for Critical Decisions & Reviews

Updated 04-Apr-06

Fermilab

Estimated Need by Dates for DOE Approvals and Documents



Target Completion Dates for MINERvA Documents

Note:
Items marked in Red indicates change from prior version

Conceptual Design
DOE M 413.3

5.2.4 Conceptual Design Report

The Conceptual Design Report is developed during the conceptual exploration and design process when the outcome is envisioned as an asset that performs a specific function. When used in this Manual, the Conceptual Design Report refers to the documentation that identifies the requirements and concept for fulfilling those requirements. The Conceptual Design Report is often the first technical document produced during the acquisition process. It is a necessary element in decision making because it presents the results of analysis of requirements, risks, and alternatives to arrive at a recommended solution. The conceptual design or equivalent should clearly and concisely describe the recommended alternative, the requirements and functions that must be performed and the key performance parameters that form the basis of the Performance Baseline. When the purpose of the project is remediation, restoration, or demolishing, other forms of documenting the requirements and alternative(s) may be used.

Common elements of the report may include the following (and other items not listed) as necessary to support the transition from concept to design.

- A description of the recommended alternative (design or characterization) and a synopsis of the development activities. In remediation projects, the report is a combination of applicable regulations and characterization.
- A schedule and cost range (or rough order of magnitude cost) including resources necessary to complete the design and preparation activity. Including identified resources necessary for a Project Engineering Design budget request, when required.
- An alternatives analysis including life-cycle costs, operational considerations, site development considerations, relationships to other site activities, and the comparison of alternatives, the risks, and the determined preferred alternative. Life-cycle costs are to include decontamination and demolition, transition (personnel and equipment moves), utilities, and maintenance including comparisons that incorporate a review of research and development and/or technology development challenges presented by the selected alternative.
- A preliminary Safeguards and Security Plan
- Performance parameters that are responsive to the mission need
- A preliminary Project Execution Plan
- The summary test and acceptance criteria
- The Work Breakdown Structure, which identifies the elements of the end product and dictionary

Conceptual Design

DOE M 413.3

- Condition assessments for the facilities, if the project is upgrading existing facilities. These assessments may confirm the suitability of facilities for the proposed action.
- A waste minimization/pollution identification and prevention plan, and a Waste Management Plan including control, storage, treatment, and disposal commensurate with the type of asset and maturity of the planning
- A draft Decontamination and Decommissioning Plan, if required
- Assessments of and strategy for:
  - The National Environmental Policy Act (NEPA). The level of NEPA documentation required and the plan for completing these documents in support of the proposed project schedule.
  - Safety. The level of safety documentation required for the project, and the plan for completing these documents in support of the proposed project schedule. An initial Hazards
  - Assessment and/or Preliminary Safety Analysis.
  - Security Considerations.
  - Site Selection. The application of a coherent, defensible methodology to identify and evaluate site options.
  - Waste Management. Decontamination and decommissioning plans where appropriate and applicable; waste minimization efforts.
- Public and/or stakeholder input
- Preliminary interface control documents
- System requirements and applicable codes and standards for design, procurement, construction, or characterization
- Site selection criteria and site surveys/ evaluations
- Anticipated/project products/deliverables (project end-state)
- Known and anticipated project constraints
- Conceptual design drawings/renderings/calculations
- Readiness assessment or readiness review concepts
- A vulnerability assessment
- A preliminary plan for demobilization and/or disposal of facilities being replaced

Critical Decision Prerequisites

	Critical Decision Prerequisites	Target Start Date	Start Date	Target Completion Date	Date Completed	Date Approved	Current Status
CD-0	Justification of mission need document (DOE CD-0 Document)						
	Preconceptual Planning (Proposal)						
	Fermilab PAC Stage 1 Approval						
	Mission Need Independent Project Review (HEPAP or Subpanel Recommendation)						
CD-1	Conceptual Design Report (CDR)						
	Acquisition Strategy - DOE Document						
	Preliminary Project Execution Plan (PEP) - DOE Document						
	Preliminary Hazard Analysis Report						
	Project Data Sheet for design (includes PED Funds)	N/A	N/A	N/A	N/A	N/A	
	Verification of mission need (DOE or Fermilab CD-1 Review)						
	Preliminary Project Management Plan (PMP)						
	Baseline range for Cost, Schedule and Scope (preliminary Resource Loaded Schedule (RLS), Bases of Estimate (BOE), WBS Dictionary and Milestone Dictionary)						
	Draft Risk Management Plan						
	Draft Configuration Management Document						
	Initial Value Management Document						
	PARS Reporting (reporting a comparison of project performance with the conceptual design schedule and cost plan)						
CD-2	Preliminary Design (Technical Design Report (TDR))						
	Review of contractor project management system (Pre-EIR Assessment)						
	Final Project Execution Plan (PEP) - DOE Document						
	National Environmental Policy Act (NEPA) documentation						
	Project Data Sheet for construction	N/A	N/A	N/A	N/A	N/A	
	Draft Preliminary Safety Analysis Document						
	Performance Baseline External Independent Review (EIR) and Independent Cost Estimate (Part of EIR)						
	Final Project Management Plan (PMP)						
	Baseline Cost, Schedule and Scope (baseline Resource Loaded Schedule (RLS), Bases of Estimate (BOE), WBS Dictionary and Milestone Dictionary)						
	Final Risk Management Plan						
	Final Configuration Management Document						
	Updated Value Management Document						
	Performance Management System Document (EVMS)	N/A	N/A	N/A	N/A	N/A	
	Final Design & Procurement Packages for Long Lead Time Items						
	Fermilab PAC Stage 2 Approval						

DOE O 413.3 Attachment 4

PROJECT ACQUISITION PROCESS AND CRITICAL DECISIONS

Project Planning Phase		Project Execution Phase			Mission
Preconceptual Planning	Conceptual Design	Preliminary Design	Final Design	Construction	Operations

CD-0	CD-1	CD-2	CD-3	CD-4
Approve Mission Need	Approve Preliminary Baseline Range	Approve Performance Baseline	Approve Start of Construction	Approve Start of Operations or Project Closeout

See Page 2 for CDs on Environmental Restoration and Facility Disposition Projects

CD-0	CD-1	CD-2	CD-3	CD-4
Actions Authorized by Critical Decision Approval				
• Proceed with conceptual design using program funds • Request PED funding	• Allow expenditure of PED funds for design	• Establish baseline budget for construction • Continue design • Request construction funding	• Approve expenditure of funds for construction	• Allow start of operations or project closeout
Critical Decision Prerequisites				
• Justification of mission need document • Acquisition Strategy • Preconceptual planning • Mission Need Independent Project Review	• Acquisition Plan • Conceptual Design Report • Preliminary Project Execution Plan and baseline range • Project Data Sheet for design • Verification of mission need • Preliminary Hazard Analysis Report	• Preliminary design • Review of contractor project management system • Final Project Execution Plan and performance baseline • Independent cost estimate • National Environmental Policy Act documentation • Project Data Sheet for construction • Draft Preliminary Safety Analysis Report • Performance Baseline External Independent Review	• Update Project Execution Plan and performance baseline • Final design and procurement packages (**) • Verification of mission need • Budget and congressional authorization and appropriation enacted • Approval of Safety documentation • Execution Readiness Independent Review	• Operational Readiness Review and acceptance report • Project transition to operations report • Final Safety Analysis Report **After CD-4** **Closeout** • Project closeout report

(**) To the degree appropriate to initiate construction as scheduled.

DOE 413.3 Attachment 1 - CONTRACTOR REQUIREMENTS DOCUMENT

1. Earned Value Management System (Not required if <$20M)
2. Monthly Reports
3. Acquisition Plan
4. Technical performance analyses and corrective action plans
5. Critical path schedule and Project Master Schedule
6. Cost estimate; (Basis of Estimate)
7. Risk identification, quantification and mitigation
8. Integrated technical, cost, and schedule baseline
9. Configuration Management
10. Value Engineering
11. Quality Assurance Program
12. Integrated Safety Management System
13. Sustainable Building Design

CD-1 Documentation PPEP

- Preliminary Project Execution Plan
  - A DOE document written by the DOE Federal Project Director (FED) and OHEP Program Officer
  - FPD for DES is (?) Paul Philp, FSO Fermilab Site Office
  - Describes the way DOE will manage the project
  - DES preparing a first draft is probably a good idea
  - MINERvA example

CD-1 Documentation PPMP

- Preliminary Project Management Plan
  - Not required by 413.3
  - But, required by FSO and Fermilab
  - Describes how Fermilab and the DES Project will manage the project
  - Describes the management system in a lower level of detail
  - MINERvA example

CD-1 Documentation
Acquisition Strategy

- Acquisition Strategy not Acquisition Plan
  - Another DOE “prepared” Document
  - Guidelines for content in DOE M 413.3 (follow)
  - MINERvA example

DOE M 413.3-1 Excerpts

5.4 ACQUISITION STRATEGY

The mission need will have identified the range of acquisition alternatives. As the concept evolves and alternatives are investigated, an acquisition strategy is developed that will provide the conceptual basis of the plan a project follows in execution. A carefully developed and consistently executed strategy is one of the keys to a successful project. It is often a difficult and challenging task to blend the multitude of requirements for an acquisition into an acquisition strategy that also represents a consensus among the organizations that influence or are influenced by the project.

An acquisition strategy is a high-level business and technical management approach designed to achieve project objectives within specified resource constraints. It is the framework for planning, organizing, staffing, controlling, and leading a project. It provides a master schedule for activities essential for project success, and for formulating functional strategies and plans.

The strategy should be structured to achieve project stability by minimizing technical, schedule, and cost risks. Thus, the criteria of realism, stability, balance, flexibility, and managed risk should be used to guide the development and execution of an acquisition strategy and evaluate its effectiveness. The acquisition strategy must reflect the interrelationships and schedule of acquisition phases and events based on a logical sequence of demonstrated accomplishments, not on fiscal or calendar expediency.

The acquisition strategy conveys the Integrated Project Team's approach for the successful acquisition of the project, its intended outcomes, and rationale for that approach. The approach should address the market conditions, effective use of competition, and performance based contracting opportunities. Projects may require multiple contracts. The strategy should also address the management strategy that the program intends to use in order to integrate multiple contractor efforts. Approvals of mission needs and acquisition strategies do not constitute approvals required by the Office of Procurement and Assistance Management for specific contract clearance purposes, including contract acquisition plans.

Federal officials develop the acquisition strategy. The Integrated Project Team should review previous strategies for similar projects and discuss them with the key personnel involved to take advantage of lessons learned. Industry and laboratories may be consulted during the development of the acquisition strategy. However, care must be taken to avoid release or pre-procurement sensitive information that could be construed as giving existing contractors a competitive advantage.

DOE M 413.3-1 Excerpts (continued)

5.4.1 Acquisition Strategy Content

The strategy should be a logical extension from the approved mission need, narrowing the range of acquisition alternatives to the one or group best suited for the project. The strategy should be tailored based on the size, risk, and complexity of the project. When an element is not applicable, include a brief explanation. The strategy should focus on *quality* rather than *quantity*. For very large or complex projects, the acquisition strategy may include other supporting analysis or materials pertinent to the conclusion. The acquisition strategy should consider the following elements.

- The project title should be the same as was presented in the mission need if the title has changed, reference the prior title.
- Identify the primary office of responsibility for the project
- Describe how the project fits within the mission of the program office and why it is critical to the overall accomplishment of the DOE mission, including the benefits to be realized. List the mission need approval date, the approving official, and summarize any material changes from the approved mission need.
- Describe the key technical and performance parameters for the project, including the proposed location. For each new facility, show the square footage and address the elimination by transfer, sale, or demolition of excess buildings and facilities. Include important laws, agreements, or other factors which significantly influence the project.
- Identify the projected Total Project Cost, expressed as a range, including a funding profile that distributes the cost by fiscal year. The Total Project Cost consists preconstruction construction or implementation costs, costs, such as conceptual design, preliminary design, research and development, training and startup costs. Discuss lifecycle costs, including costs of dismantling and demolition at project completion. Identify the source of funds, including those from outside sources. Identify key milestones and events in the acquisition, development, and implementation process. Include the discussion of the total life-cycle costs and benefits consistent with the policies described in OMB A-94,: Guidelines and Discount Rates for Benefit Cost Analysis of Federal Programs.
- Identify applicable conditions and factors that may affect the operational, design, or execution requirements, such as those regulated by the U.S. Environmental Protection Agency, State and other legal entities; economic factors, technological and political sensitivities and conditions should be discussed. For example, discuss the applicability of and expected milestones for the environmental assessment or environmental impact statement, and the proposed resolution of any environmental related requirements that affect the project.

DOE M 413.3-1 Excerpts (continued)

- Identify the major acquisition, management, technical, cost, and schedule risks and how handling the risks will influence the strategy. While external risks, which originate from factors usually outside the control of the project and often associated with those requirements and constraints that define the project limits, should be discussed, the main emphasis should be on the internal risks over which the project has more direct control. They result from decisions made within the program or project office that affect cost, schedule, performance, and technical approaches to be used when the acquisition strategy is developed or modified.
- Discuss the approach to the acquisition, including managing and executing the project. Identify the acquisition alternatives and site locations. The strategy should evolve from the possible alternatives that focus on the plan best suited for satisfying the mission need in the most effective, economical, and timely manner. The program should consider each alternative course of action across the following key discriminators which may influence the selected strategy: cost, schedule, risks, technology requirements, interfaces and integration requirements, safeguards and security, location and site conditions, legal and regulatory considerations, significant environmental, safety, and health requirements, stakeholder issues, government furnished property, services, and information. For example, each alternative course of action should include the potential use of similar capabilities at other sites, modification or renovation of existing facilities, or doing nothing. Each alternative should also include contract alternatives, including the use of a prime contractor, integrating, or multiple contractors and the rationale for the recommended alternative.
- Discuss the methods of competition that will be sought, promoted, and sustained throughout the course of the project. If full and open competition is not contemplated, summarize the decision why this is appropriate. If an existing prime contract will be used, discuss the rationale for this approach. Describe each major contract contemplated. Discuss the contract type selected (e.g., fixed-price, cost-plus), including incentive and fee arrangements. Identify the use of special acquisition procedures (e.g., design-build or design-negotiate-build) and demonstrations that may be used to reduce risk. Discuss whether sealed bidding or best value processes will be used and why. Describe the planned incentive approach and how performance incentives for each major acquisition (e.g., objective award fee, incentive fee, performance-based contract, cost savings/cost reduction) will be used to promote performance. The major types of contracts and incentives proposed should be based on consideration of major risks.

DOE M 413.3-1 Excerpts (continued)

- Discuss the approach to managing the project. Identify the Integrated Project Team, organization structure and staffing skills. Describe the approach to performance evaluation, verification, and validation. Describe the relationships and interfaces between organizational elements. Include descriptions of project management and control systems that will be used to successfully execute the project.
- Interfaces with other DOE organizations, National Laboratories, or outside stakeholders should be discussed. When a site is subject to the requirements of DOE Acquisition Letter 2000-08 of August 18, 2000, requiring a Site Utilization and Management Plan, the project should be consistent with that site plan. Discuss the impact of this project and its associated contracts and how coordination among programs/projects at the site has been considered for the attainment of the site's mission. Discuss what management system will be used by the Government to monitor the contractor's effort (e.g., Earned Value Management System. Discuss Federal staffing, skills, and structure that will be required to manage the project.

5.4.2 Submission of the Acquisition Strategy

All acquisition strategies for Critical Decision-1 are preferred in electronic format (MSWord) and sent to ESAAB.SECRETARIAT@hq.doe.gov at least 3 weeks prior to any scheduled decisional briefings. The acquisition strategy will be staffed through OECM (ME-90) for the OMBE recommendation. OECM will provide a recommendation memo to the appropriate Program Secretarial Officer or Deputy Administrator. Approval of the strategy does not imply approval of Critical Decision-1. Since the strategy is based on facts and circumstances existing at the time of development, it may be changed when additional information becomes available or conditions change. Change must make good business sense and be justified and documented. Material changes to the acquisition strategy, such as changes in contract type, competition or major milestones, must be documented and approved at the same approval level as the original.

DOE M 413.3-1 Excerpts (continued)

5.4.3 Acquisition Strategy Format

Project Title:

Lead Program Office:

Total Project Cost (TPC) Range:

1. <u>Desired Outcome and Requirements Definition</u>

CD – 0 Approval Date, Approving Official and Any Material Changes

Summary Project Description and Scope

Performance Parameters Required to Obtain Desired Outcome

2. <u>Cost and Schedule Range</u>

Total Project Cost Range

Funding Profile

Key Milestones and Events

3. <u>Major Applicable Conditions</u>

Environmental, Regulatory and Political

Sensitivities Others

DOE M 413.3-1 Excerpts (continued)

4. <u>Risk and Alternatives (Technical, Location, & Acquisition Approach)</u>

The major technical, cost, and schedule risks identified and analyzed to-date should be summarized along with what efforts are planned or underway to manage, monitor, reduce or eliminate risks and the consequences of failure to achieve goals.

- Cost and Schedule Range
- Funding Range and Budget Management
- Technology and Engineering
- Interfaces and Integration Requirements
- Safeguards and Security
- Location and Site Conditions
- Legal and Regulatory
- Environmental, Safety and Health
- Stakeholder Issues

5. <u>Business and Acquisition Approach</u>

Acquisition and Contract Types Incentive Approach/Linkage to Performance Metrics Competition

6. Management Structure and Approach

Identify IPT, Organization Structure and Staffing Skills

Approach to Performance Evaluation and Validation (i.e., EVMS)

Interdependencies and Interfaces

Action Items

a) Confirm the Snakepit as the location for future WGMs [Ed Temple]

b) Add wyatt@fnal.gov and kathy.turner@science.doe.gov to the DES DOE working group mails. [Ed Temple]

c) Send specific ME request to Jim Strait. [Brenna Flaugher]

d) Get copy of Kathy Turner's list of documentation needed for paper DOE CD-1 Review (from Brenna?) [Wyatt Merritt]

e) Get a copy of the draft DES-FNAL-NOAO MOU from John to help define the boundaries of the DOE project – done. [Wyatt Merritt]

f) Assemble outline for a CDR (by Tuesday Apr 18) and begin to add content from obvious sources; make a list of new content needed. [Wyatt Merritt, with help from John Peoples, Brenna Flaugher and Jim Annis]

Next WGM

Friday, May 12, 2006

Snake Pit

10:00 – 12:00